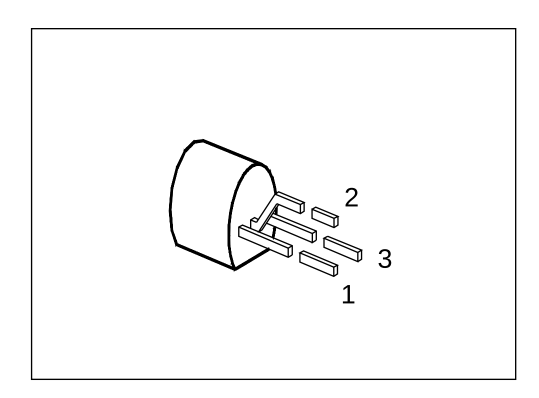
SIEMENS

NPN Silicon Transistors With High Reverse Voltage

BF 420
BF 422

- High breakdown voltage
- Low collector-emitter saturation voltage
- Low capacitance
- Complementary types: BF 421, BF 423 (PNP)



Type	Marking	Ordering Code	Pin Configuration 1	2	3	Package[1)]
BF 420 BF 422	–	Q62702-F531 Q62702-F495	E	C	B	TO-92

Maximum Ratings

Parameter	Symbol	Values BF 420	BF 422	Unit
Collector-emitter voltage	V_{CE0}	–	250	V
Collector-emitter voltage R_{BE} = 2.7 k	V_{CER}	300	–	
Collector-base voltage	V_{CB0}	300	250	
Emitter-base voltage	V_{EB0}	5		
Collector current	I_C	50		mA
Peak base current	I_{BM}	100		
Total power dissipation, T_C = 88 ˚C	P_{tot}	830		mW
Junction temperature	T_j	150		˚C
Storage temperature range	T_{stg}	– 65 … + 150		

Thermal Resistance

Junction - ambient	$R_{th\ JA}$	≤ 150	K/W
Junction - case[2)]	$R_{th\ JC}$	≤ 75	

1) For detailed information see chapter Package Outlines.
2) Mounted on Al heat sink 15 mm × 25 mm × 0.5 mm.

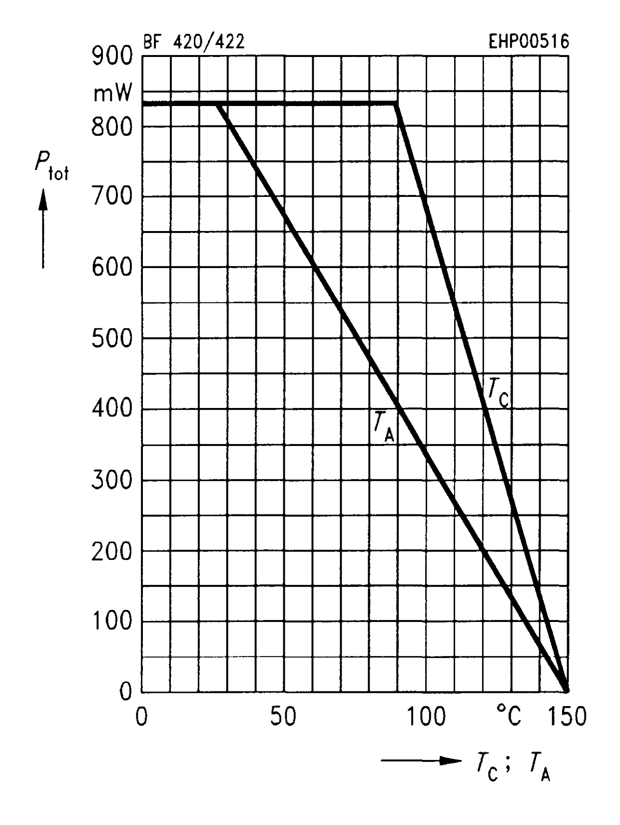
Electrical Characteristics

at T_A = 25 ˚C, unless otherwise specified.

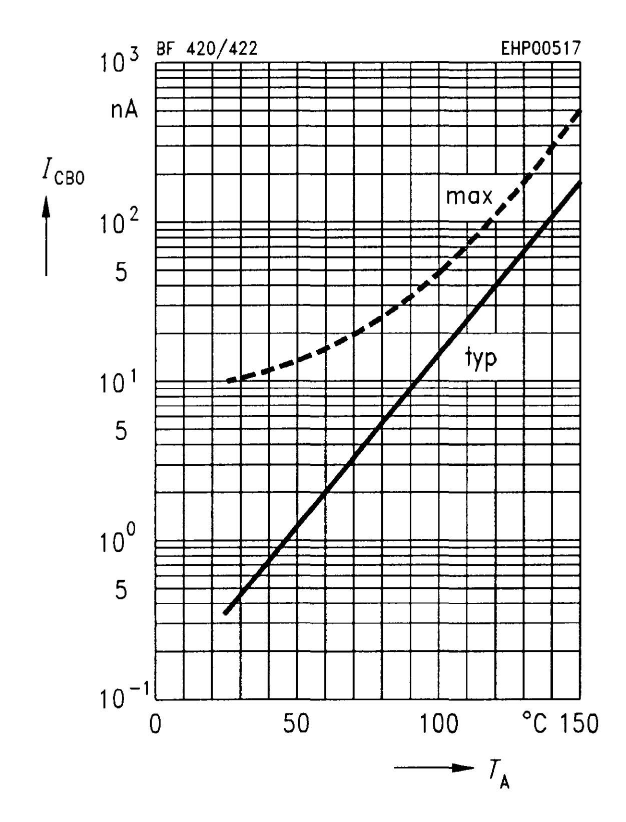
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Collector-emitter breakdown voltage I_C = 1 mA BF 422	$V_{(BR)CE0}$	250	–	–	V
Collector-emitter breakdown voltage I_C = 10 µA, R_{BE} = 2.7 k BF 420	$V_{(BR)CER}$	300	–	–	
Collector-base breakdown voltage I_C = 10 µA BF 420 BF 422	$V_{(BR)CB0}$	 300 250	 – –	 – –	
Emitter-base breakdown voltage, I_E = 10 µA	$V_{(BR)EB0}$	5	–	–	
Collector cutoff current V_{CB} = 200 V	I_{CB0}	–	–	10	nA
Collector cutoff current V_{CE} = 200 V, R_{BE} = 2.7 kΩ, T_A = 150 ˚C	I_{CER}	–	–	10	µA
Emitter cutoff current, V_{EB} = 5 V	I_{EB0}	–	–	10	
DC current gain I_C = 100 µA, V_{CE} = 20 V I_C = 25 mA, V_{CE} = 20 V	h_{FE}	 15 50	 – –	 – –	–
Collector-emitter saturation voltage[1)] I_C = 25 mA, T_j =150 ˚C	$V_{CEsatRF}$	–	–	20	V
AC characteristics					
Transition frequency I_C = 10 mA, V_{CE} = 10 V, f = 20 MHz	f_T	–	100	–	MHz
Output capacitance V_{CB} = 30 V, f = 1 MHz	C_{obo}	–	0.8	–	pF

1) Pulse test: $t \leq$ 300 µs, $D \leq$ 2 %.

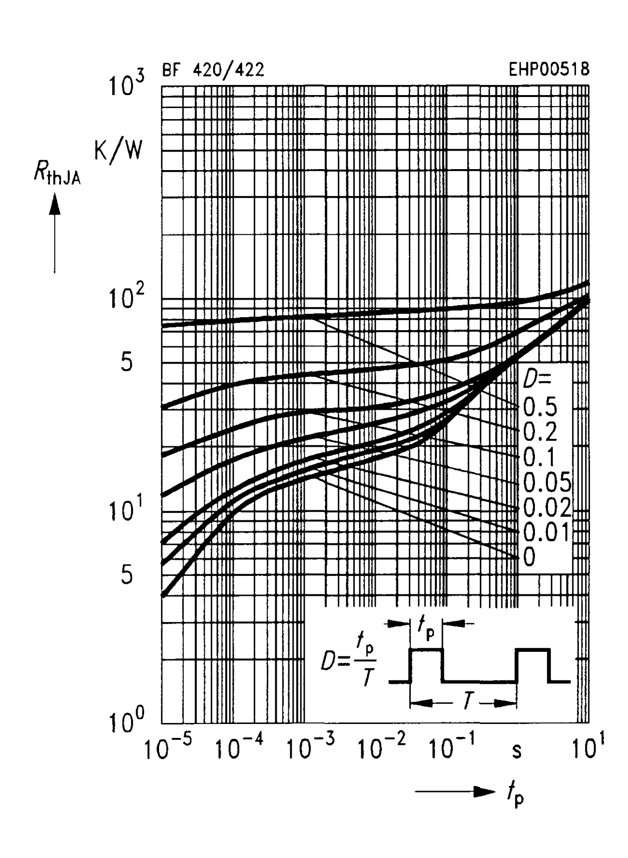
Total power dissipation $P_{tot} = f(T_A; T_C)$



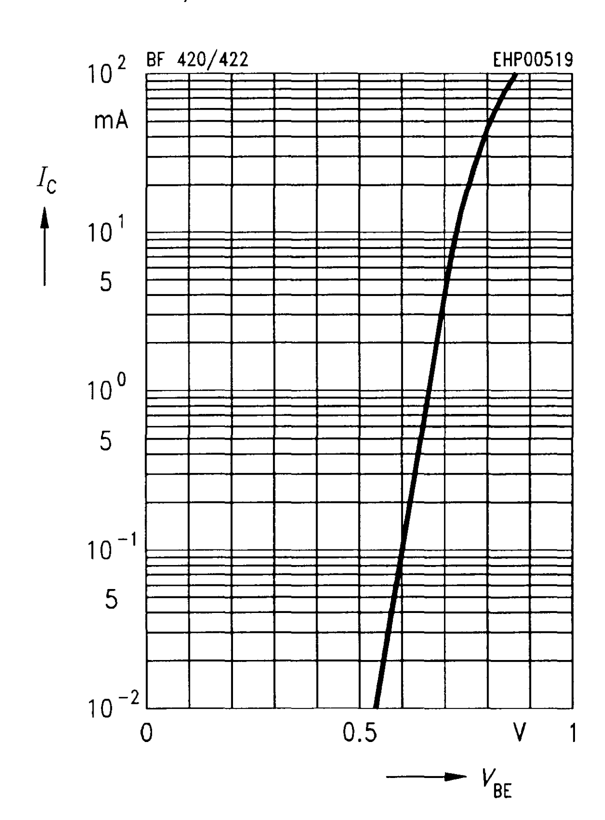

Collector cutoff current $I_{CB0} = f(T_A)$
V_{CB} = 200 V



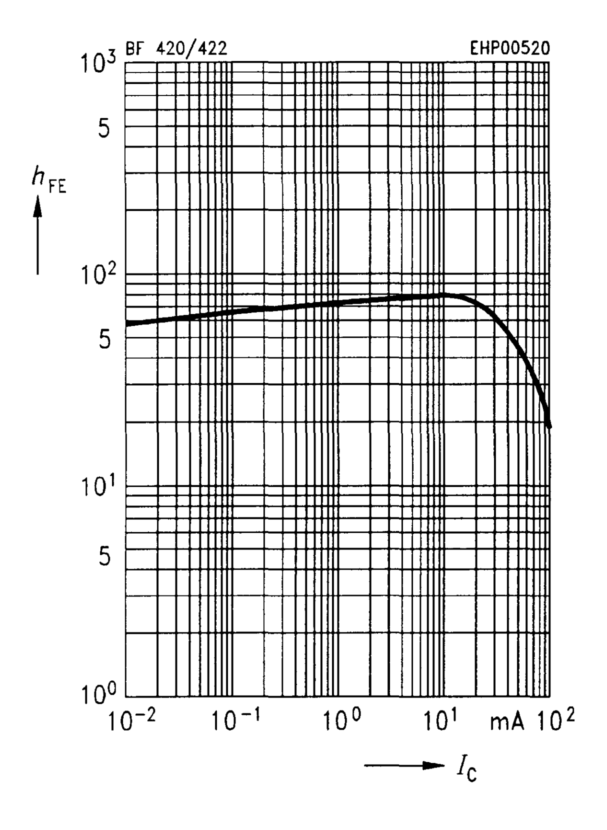
Permissible pulse load $R_{thJA} = f(t_p)$



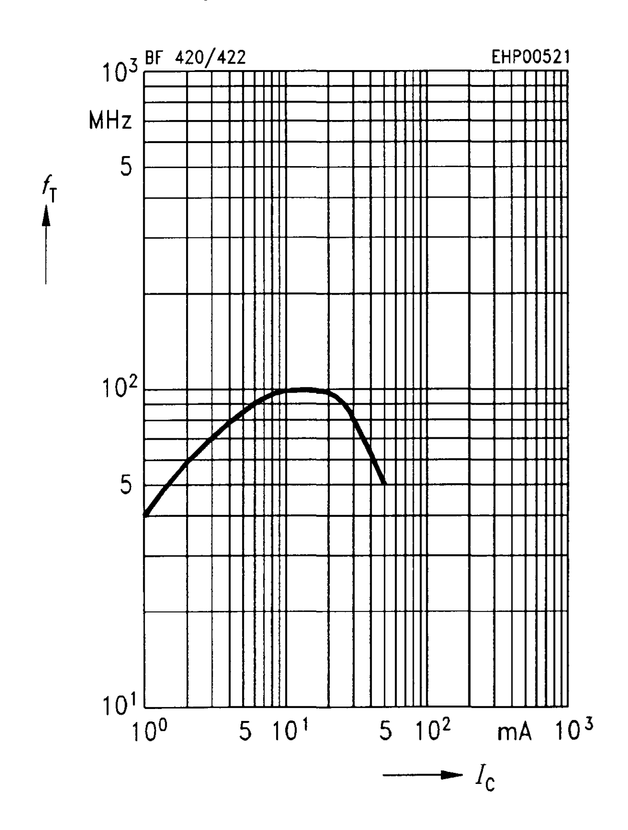
Collector current $I_C = f(V_{BE})$
V_{CE} = 20 V, T_A = 25 ˚C



DC current gain $h_{FE} = f(I_C)$
V_{CE} = 20 V, T_A = 25 ˚C



Transition frequency $f_T = f(I_C)$
V_{CE} = 10 V, f = 20 MHz



Output capacitance $C_{obo} = f(V_{CB})$
I_C = 0, f = 1 MHz

